

WHAT IS CLAIMED IS:

1. A photoresist ashing system comprising two processing chambers configured for alternate operation and a single pump in fluid communication with the two chambers, the pump being configured to perform both pump down and process pumping of the two chambers.

2. The system of Claim 1, further comprising a throttle valve between the single pump and the two chambers, the throttle valve configured to regulate a pressure in at least one of the chambers.

3. The system of Claim 1, wherein the single pump is a dry pump.

4. The system of Claim 1, wherein the system further comprises only one isolation valve between the pump and a first one of the chambers.

5. The system of Claim 4, wherein the system further comprises only one isolation valve between the pump and a second one of the chambers.

6. The apparatus of Claim 1, wherein the chambers are adjacent to each other.

7. The apparatus of Claim 1, wherein each chamber comprises a remote plasma applicator configured to be powered by a common power source switchable between the first chamber and the second chamber.

8. The apparatus of Claim 7, wherein the power supply is microwave.

9. The apparatus of Claim 7, wherein the power supply is a common radio frequency power source synchronously multiplexed between the pair of processing chambers.

10. The apparatus of Claim 1 wherein the processing chambers are each configured to receive a single silicon wafer at a time, and the processing chambers each comprise a downstream plasma reactor.

11. The apparatus of Claim 1 wherein the processing chambers are each configured to receive a single silicon wafer at a time, and the processing chambers each comprise an in-chamber plasma reactor.

12. A dual chamber processing system for continuously processing a plurality of workpieces comprising:

a common power source switchable between a first plasma applicator of a first chamber and a second plasma applicator of a second chamber,

the first chamber for processing a second workpiece in a vacuum to completion therein when the power source is applied thereto and switched ON,

a robot for removing at substantially atmospheric pressure a first workpiece from the second chamber after processing and reloading the second chamber with a third workpiece to be processed while the second workpiece is being processed in the first chamber,

the second chamber for processing the third workpiece in a vacuum to completion therein when the power source is applied to the second plasma applicator and switched ON,

the robot for removing at substantially atmospheric pressure the second workpiece from the first chamber after processing and reloading the first chamber with a fourth workpiece to be processed while the third workpiece is being processed in the second chamber, and

exactly one pump adapted to be in fluid communication with the first and second chambers, the pump being configured to perform both process pumping and pump-down pumping of both chambers;

a computer configured to repeatedly synchronously alternately control the power source application, the robot movement, the chamber processing, and the pump.

13. The apparatus of Claim 12, wherein the computer is further configured to open the pump to fluid communication with only one of the chambers at a time.

14. A method of processing substrates in a processing apparatus, the method comprising:

providing a first processing chamber and a second processing chamber;

providing a single vacuum pump adapted to selectively communicate with the first processing chamber via a first vacuum line, and with the second processing chamber via a second vacuum line;

alternately pumping the first and second chambers with the single pump.

15. The method of Claim 14, wherein alternately pumping comprises:

providing a first isolation valve in said first vacuum line, and a second isolation valve in said second vacuum line;

opening the first isolation valve in the first vacuum line;

pumping down the first processing chamber with the pump;

processing a first substrate in the first processing chamber;

unloading a second substrate from the second processing chamber;

16. The method of Claim 15, wherein alternately pumping comprises:

loading a third substrate into the second processing chamber;

closing the first isolation valve in the first vacuum line;

opening the second isolation valve in the second vacuum line;

pumping down the second processing chamber with the pump after completing the processing of the first substrate; and

processing the third substrate in the second processing chamber.

17. The method of Claim 17, wherein said unloading a second substrate, and loading a third substrate are performed simultaneously with said pumping down the first processing chamber with the pump.